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10/062,112	02/01/2002	Curtis E. Adams	00069CON	9977

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EXAMINER

SHOSHO, CALLIE E

ART UNIT

PAPER NUMBER

1714

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/062,112

Applicant(s)

ADAMS, CURTIS E.

Examiner

Callie E. Shosho

Art Unit

1714

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-30 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-30 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). ____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) ____ 6) ☐ Other: ____

DETAILED ACTION

Claim Rejections - 35 USC § 112

1. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

2. Claims 13, 17, and 24 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

(a) Claim 13 recites specific types of pigment and “shades thereof”. The scope of the claim is confusing because it is not clear what is meant by “shades thereof”. What types of pigments does this phrase encompass? Clarification is requested.

(b) Claim 17 appears to recite an improper Markush group. It is suggested that in line 2, “list” is changed to “group”. Similar suggestion is made in claim 24 which recites the same language.

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

4. Claims 1-2, 4-13, 20, 25-28, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Komatsu et al. (U.S. 6,379,443).

Komatsu et al. disclose ink jet ink comprising aqueous liquid vehicle, modified pigment comprising pigment such as carbon black and cyan, magenta, and yellow pigments having attached functional groups including sulfonate and carboxyl groups as well as polymeric group, polymer such as styrene-(meth)acrylate copolymer, and salt having polyvalent metal anion such as phosphate and carbonate. There is further disclosed a method wherein the above ink is incorporated into ink jet printer and then printed onto substrate (col.1, lines 6-9, col.4, line 45- col.5, line 7, col.6, line2 5-8, 32-35, and 39-41, col.7, lines 48-49, col.8, lines 32-35, and col.10, lines 11-12).

Although there is no disclosure that functional group present on the pigment is capable of coordinating with the polyvalent ion, given that Komatsu et al. disclose salt comprising polyvalent ion identical to that presently claimed and pigment having attached functional groups identical to that presently claimed, it is clear that the functional group of the pigment is inherently capable of coordinating with the polyvalent ion.

In light of the above, it is clear that Komatsu et al. anticipate the present claims.

5. Claims 1-2, 4-9, 11-13, 20-25, 27-28, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Ichizawa et al. (U.S. 6,368,397).

Ichizawa et al. disclose ink jet ink comprising aqueous liquid vehicle, modified pigment comprising pigment such as carbon black and cyan, magenta, and yellow pigments having

attached functional groups including sulfonate and carboxyl groups, polymer such as acrylic polymer, styrene-acrylic copolymer, and (meth)acrylic acid containing polymer, and salt having polyvalent metal anion such as phosphate. There is further disclosed a method wherein the above ink is incorporated into ink jet printer and then printed onto substrate (col.1, lines 5-7, col.6, lines 19-20 and 42-63, col.7, lines 17-37, col.8, lines 63-65, col.9, lines 11-13, 27-29, and 49-56, col.12, lines 60-61, and col.20, lines 3-7).

Although there is no disclosure that functional group present on the pigment or the functional group present on the polymer is capable of coordinating with the polyvalent ion, given that Ichizawa et al. disclose salt comprising polyvalent ion identical to that presently claimed as well as pigment having attached functional groups and polymer comprising functional group identical to that presently claimed, it is clear that the functional group of either the pigment or polymer is inherently capable of coordinating with the polyvalent ion.

In light of the above, it is clear that Ichizawa et al. anticipate the present claims.

6. Claims 1-2, 4-13, 20-28, and 30 are rejected under 35 U.S.C. 102(e) as being anticipated by Suzuki et al. (U.S. 6,153,001).

Suzuki et al. disclose ink jet ink comprising aqueous liquid vehicle, modified pigment comprising pigment such as carbon black and cyan, magenta, and yellow pigments having attached functional groups including sulfonate and carboxyl groups as well as polymeric group, polymer such as polystyrene sulfonate, polyacrylate, and acrylic acid-acrylate copolymer, and salt having polyvalent metal anion such as phosphate or oxalate. There is further disclosed a method wherein the above ink is incorporated into ink jet printer and then printed onto substrate

(col.1, line 6-col.2, line 2, col.3, lines 22-25, col.7, lines 5-12 and 35-52, col.7, line 60-col.8, line 42, col.8, line 57, col.11, lines 11-12, col.12, lines 9-12, and col.13, line 16).

Although there is no disclosure that functional group present on the pigment or the functional group present on the polymer is capable of coordinating with the polyvalent ion, given that Suzuki et al. disclose salt comprising polyvalent ion identical to that presently claimed as well as pigment having attached functional groups and polymer comprising functional group identical to that presently claimed, it is clear that the functional group of either the pigment or polymer is inherently capable of coordinating with the polyvalent ion.

In light of the above, it is clear that Suzuki et al. anticipate the present claims.

Claim Rejections - 35 USC § 103

7. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claims 1-2, 4-9, 11-12, 14-25, 27-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over WO 96/18695 in view of Lin (U.S. 5,997,623).

WO 96/18965 disclose ink jet ink comprising aqueous liquid vehicle, modified pigment comprising pigment such as carbon black having attached functional groups including ionic or ionizable groups such as ammonium, sulfonate, and carboxyl groups, and polymer such as styrene-acrylic acid copolymer or styrene-maleic acid copolymer. There is further disclosed a method wherein the above ink is incorporated into ink jet printer and then printed onto substrate (page 4, line 26-page 5, line 6, page 6, lines 32-36, page 7, line 12, and page 8, lines 7 and 26-31).

The difference between WO 96/18695 and the present claimed invention is the requirement in the claims of salt having polyvalent ion.

Lin, which is drawn to ink jet inks, discloses using salt comprising polyvalent metal cation such as calcium, magnesium, cadmium, copper, aluminum, iron, and zinc and polyvalent metal anion such as sulfate in order to reduce intercolor bleed (col.14, line 64-col.15, line 16).

Although there is no disclosure that either the functional group present on the pigment or the functional group present on the polymer as disclosed by WO 96/18695 is capable of coordinating with the polyvalent ion of the salt disclosed by Lin, given that WO 96/18695 discloses pigment having attached functional group and polymer comprising functional group identical to that presently claimed and Lin discloses salt comprising polyvalent ion identical to that presently claimed, it is clear that the functional group of the pigment or polymer is intrinsically capable of coordinating with the polyvalent ion.

In light of the motivation for using salt disclosed by Lin as described above, it therefore would have been obvious to one of ordinary skill in the art to use such salt in the ink jet ink of WO 96/18695 in order to reduce intercolor bleed, and thereby arrive at the claimed invention.

9. Claims 1-10 and 13-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Yu et al. (U.S. 6,494,943) in view of Lin (U.S. 5,997,623).

Yu et al. disclose ink jet ink comprising aqueous or nonaqueous liquid vehicle, modified pigment comprising pigment such as cyan, magenta, and yellow pigments having attached functional groups including ionic or ionizable groups such as ammonium, sulfonate, and carboxyl groups as well as polymeric group, and polymer such as styrene-acrylic acid copolymer or styrene-maleic acid copolymer containing polymer. There is further disclosed a method wherein the above ink is incorporated into ink jet printer and then printed onto substrate (col.1, lines 11-13, col.5, lines 5-12, col.5, line 22-col.6, line 10, col.9, lines 57-66, col.15, lines 10 and 12-13, col.16, lines 5-12 and 48-54, and col.21, lines 64-67).

The difference between Yu et al. and the present claimed invention is the requirement in the claims of salt having polyvalent ion.

Lin, which is drawn to ink jet inks, discloses using salt comprising polyvalent metal cation such as calcium, magnesium, cadmium, copper, aluminum, iron, and zinc and polyvalent metal anion such as sulfate in order to reduce intercolor bleed (col.14, line 64-col.15, line 16).

Although there is no disclosure that functional group present on the pigment or the functional group present on the polymer as disclosed by Yu et al. is capable of coordinating with the polyvalent ion of the salt disclosed by Lin, given that Yu et al. discloses pigment having

attached functional group and polymer comprising functional group identical to that presently claimed and Lin discloses salt comprising polyvalent ion identical to that presently claimed, it is clear that the functional group of the pigment or polymer is intrinsically capable of coordinating with the polyvalent ion.

In light of the motivation for using salt disclosed by Lin as described above, it therefore would have been obvious to one of ordinary skill in the art to use such salt in the ink jet ink of Yu et al. in order to reduce intercolor bleed, and thereby arrive at the claimed invention.

10. Claims 1-2, 4-9, 11-17, 21-25, 27-28, and 30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu (U.S. 5,889,083) in view of WO 96/18695.

Zhu discloses ink jet ink comprising aqueous liquid vehicle, pigment such as carbon black and cyan, magenta, and yellow pigments, polymer such as styrene-acrylate copolymer, acrylic copolymer, and acrylic acid-(meth)acrylate copolymer, and salt having polyvalent metal cation such as calcium. There is further disclosed a method wherein the above ink is incorporated into ink jet printer and then printed onto substrate (col.1, lines 5-21, col.3, lines 16-22 and 27, col.5, lines 18-30 and 40-56, and col.9, line 61-col.10, line 10).

Although there is no disclosure that functional group present on the polymer is capable of coordinating with the polyvalent ion, given that Zhu disclose salt comprising polyvalent ion identical to that presently claimed and polymer comprising functional groups identical to that presently claimed, it is clear that the functional group of the polymer is intrinsically capable of coordinating with the polyvalent ion.

The difference between Zhu and the present claimed invention is the requirement in the claims of modified pigment.

WO 96/18695, which is drawn to ink jet ink, discloses modified pigment comprising pigment such as carbon black having attached functional groups including ammonium, sulfonate, and carboxyl groups. The motivation for using such pigment is that it is easy to disperse in ink and there is no need for the ink to contain dispersant (page 4, line 26-page 5, line 5, page 5, lines 13-18, and page 6, lines 32-36).

Although there is no disclosure that functional group present on the pigment as disclosed by WO 96/18695 is capable of coordinating with the polyvalent ion of the salt disclosed by Zhu, given that WO 96/18695 discloses pigment having attached functional group identical to that presently claimed and Zhu discloses salt comprising polyvalent ion identical to that presently claimed, it is clear that the functional group of the pigment is intrinsically capable of coordinating with the polyvalent ion.

In light of the motivation for using modified pigment disclosed by WO 96/18695 as described above, it therefore would have been obvious to one of ordinary skill in the art to use such pigment in the ink of Zhu in order to produce ink which does not require dispersant, and thereby arrive at the claimed invention.

11. Claims 18-20 are rejected under 35 U.S.C. 103(a) as being unpatentable over Zhu in view of WO 96/18695 as applied to claims 1-2, 4-9, 11-17, 21-25, 27-28, and 30 above, and further in view of Lin (U.S. 5,997,623).

The difference between Zhu in view of WO 96/18695 and the present claimed invention is the requirement in the claims of specific type of salt.

Lin, which is drawn to ink jet inks, discloses using salt comprising polyvalent metal cation such as zinc and polyvalent metal anion such as sulfate in order to produce ink with conductivity suitable for ink jet printing. Lin also discloses the equivalent and interchangeability of such salt with calcium chloride as disclosed by Zhu (col.14, lines 55-56 and col.14, line 64-col.15, line 2).

In light of the motivation for using such salt disclosed by Lin as described above, it therefore would have been obvious to one of ordinary skill in the art to use such salt as the salt in Zhu, and thereby arrive at the claimed invention.

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

JP 2000-345085 and Parazak (U.S. 6,281,267) each disclose ink jet ink comprising liquid vehicle, modified pigment, and polymer, however, there is no disclosure in each reference of salt as required in the present claims.

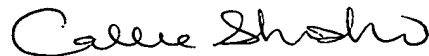
13. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Callie E. Shosho whose telephone number is 703-305-0208. The examiner can normally be reached on Monday-Friday (6:30-4:00) Alternate Fridays Off.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Vasu Jagannathan can be reached on 703-306-2777. The fax phone numbers for the

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organization where this application or proceeding is assigned are 703-872-9310 for regular communications and 703-872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0661.



Callie E. Shosho

Examiner

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May 2, 2003